REFERENCE DOCUMENT FOR FISCAL YEAR 1995

NOVEMBER 1995

"THE CONFEREES REMAIN COMMITTED TO THE CONTINUATION OF THE UNIFORMED SERVICES UNIVERSITY OF THE HEALTH SCIENCES (USUHS) AT ITS CURRENT LEVEL AND DIRECT THAT, WITHIN FUNDS MADE AVAILABLE TO THE DEFENSE HEALTH PROGRAM, THE AMOUNT PROVIDED FOR USUHS SHALL FULLY FUND THE PROGRAMS AND FUNCTIONS OF THE UNIVERSITY AT EXISTING LEVELS."

-Conference Report for the Appropriations Bill, H.R. 2126, for the Department of Defense, Fiscal Year 1996

USUHS provides the only federal medical school that teaches uniformed medical students to practice the unique discipline of military medicine

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I. CONGRESSIONAL ISSUES

The USUHS was recommended for closure by the National Performance Review (NPR) Report in September of 1993. The NPR recommendation was based on the assumption that military physicians can be acquired and trained more economically through other means, including the Health Professions Scholarship Program (HPSP). Congressional hearings on the University was held by the Senate Armed Services Committee on March 2, 1994, and by the Senate Appropriations Committee on April 14, 1994. As a result of those hearings, testimony and written statements of support from an impressive number of organizations representing the military, veterans associations and components of American medicine, both the National Defense Authorization Act for Fiscal Year 1995 and the Appropriations Bill for Fiscal Year 1995 prohibited the Administration from closing USWS. The Authorization Act also directed the General Accounting Office (GAO) to submit by June 1995, a report on USUHS addressing five issue areas. In September 1994, the USUHS President and Dean of the School of Medicine established a committee composed of senior members of the University and the School of Medicine in order to prepare a USUHS response to the issue areas tasked by the Senate Armed Services Committee for the GAO review. That report was completed and presented to the GAO and to Health Affairs in March 1995. The GAO submitted their final report on September 29, 1995.

II. GENERAL ACCOUNTING OFFICE REPORT ON USUHS

"**Military Physicians - DoD's Medical School and Scholarship Program**" **- September 29, 1995**

The Authorization Act for Fiscal Year 1995 directed the GAO to address five issue areas:

1) A comparison of the **cost of obtaining** physicians for the Armed Forces from the University with the cost of obtaining physicians from other sources;

2) An assessment of the **retention rate needs** of the Armed forces for physicians in relation to the respective retention rates of physicians obtained from the University and physicians obtained from other sources and the factors that contribute to retention rates among military physicians obtained from all sources;

3) A review of the **quality of the medical education** provided at the University with the quality of medical education provided by other sources of military physicians;

4) A review of the overall issue of the **special needs of military medicine** and how those special needs are being met by physicians obtained from the University and physicians obtained from other sources; and,

5) An assessment of the extent to which the University has responded to the **1990 report of the Inspector General** of the Department of Defense, including recommendations as to the resolution of any continuing issues relating to management and internal fiscal controls of the University, including issues relating to the Henry M. Jackson Foundation for the Advancement of Military Medicine identified in the 1990 report.

1) Cost

In order to calculate the costs of the USUHS and HPSP physicians, the GAO decided to include the following: education costs, pay, retirement, graduate medical education (GME), and costs associated with military training. The GAO reported total expected costs per graduate and expected costs per year of service both to the Department of Defense (DoD) and to the federal government. By including pay, retirement and GME costs, the GAO utilized the system life cycle cost approach rather than limiting its analysis to accession or acquisition costs.

In accordance with standard cost accounting procedures, when one utilizes system life cycle costing, one must equalize for the different length of the life cycles. As reported on page 7 of the GAO report, "University graduates are expected to serve for about 18.5 years...Regular scholarship program physicians (HPSP) are expected to serve for 9.8 years..."; **therefore, according to GAO calculations, USUHS graduates are expected to serve 1.9 times as long as HPSP graduates** (18.5 years divided by 9.8 years results in 1.887, which has been rounded to 1.9, consistent with the GAO's approach to rounding throughout its report on USUHS).

Using the table on page 33 of the GAO report (attached), once one equalizes for the different length of the life cycles, the following results:

Total Cost Per Graduate For Equal Service (18.5 Years)

	USUHS	**HPSP**
DoD Costs	$3,2252,362	$2,778,575 ($1,462,408 x 1.9)
Federal Costs	$3,350,883	$3,356,646 ($1,766,656 x 1.9)

Cost Per Year of Service

	USUHS	**HPSP**
DoD Costs	$176,236	$150,193 ($2,778,575/18.5 yrs)
Federal Costs	$181,575	$181,440 ($3,356,646/18.5 yrs)

In summary, the GAO calculations, once equalized for the different lengths of the USUHS and HPSP life cycles, support the conclusion that there is NO significant difference between the costs of the USUHS or the HPSP graduates to the federal government. Note: Calculations of DoD costs reflect cost to the agency only; calculations of cost to the federal government reflect total cost to the U.S. taxpayer.

2) Retention

The Need for Continuity, Leadership, Dedication to Public Service and Academic Recognition in the Military Medical System.

Military actions in Grenada, Panama, and the Persian Gulf have increased interest in the preparation of medical support for war. Levels of medical support in combat can be described in a similar way to present military descriptions of war, with tactical, operational, and strategic components. Direct patient care of the sick and wounded and operation of the patient evacuation system are the essential tactical tasks and are under the command and control of medical department officers.

In overall planning and execution of a deployment mission, field and medical commanders must have a comprehensive understanding of pre-deployment and combat scenario requirements so that they can communicate and collaborate on how to use their resources effectively. It is at this decision making level that field and medical commanders must collaborate to ensure that adequate medical support is planned. Medical strategic planning includes medical intelligence about disease threats, research on drugs and vaccines for disease prevention, assembly of deployment supply packages, and structured information on the national medical assets available for mobilization and deployment.

The recognition of the importance of pre-war and wartime knowledge of medical requirements was one of the significant factors that motivated both the Congress and the Executive Office of the President to recommend and approve the establishment of USUHS and the scholarship (HPSP) program as complementary sources of accession for military physicians. Public Law 92-426 established the HPSP program to be a flexible source for the quantity of doctors required by the armed forces. USUHS was established to provide a cadre of military medical officers (currently 14 percent of the total physician force) who would provide continuity and

leadership to the medical forces.

The concept that the uniformed services require a medical force which assures continuity, leadership, dedication to public service and academic recognition has been validated by the DoD, the Congress, and the Executive Office of the President during congressional hearings and by official memoranda. **By not recognizing those requirements, the lessons learned from past wars are forgotten and must be relearned at the expense of the well being of the fighting forces**. It is therefore essential to maintain enough physicians in the military services to ensure that the lessons learned in military medicine during both combat and peacetime will be safeguarded. The USUHS military medical personnel, faculty, active duty alumni and programs serve as the institutional memory for military medicine.

The Current USUHS Eighty-Five Percent Retention Rate for Those Who Have Completed Their Initial Obligation Ensures Continuity and Leadership Without Jeopardizing the Force Structure.

Congress and the Department of Defense were quite aware that the specific number of career -physicians would constantly change in proportion to the size of the military forces. Considering the current, complex era of force restructuring, USUHS provides a source of career -physicians in both quantities and over time frames of expected service that do not threaten the DoD with an overload of career physicians. For example, with a class size of 165, USUHS will produce approximately 3,300 physicians over a period of twenty years. The military services currently have around 13,000 physicians on active duty; even if this overall force were to be reduced by 40 percent, the active duty physician end strength of 8,000 would still accommodate, the 2,800 USUHS physicians who would continue to be on active duty as per the current USUHS retention rate of 85 percent. In fact, the career -physicians from USUHS would provide a cadre of medical leadership that could stabilize strategic decision-making within the constantly changing environment of the military medical system. (It should be noted that the USUHS retention rate for those who have completed their initial obligation and could leave the uniformed services was 81 percent at the time of the GAO review and is currently 85 percent. In the GAO report "expected years of service" has been substituted for the "retention rates" of the USUHS and HPSP graduates, i.e., pages 25, 51 and 52 of the GAO report). A current review of USUHS alumni data showed that 98.4 percent of all USUHS graduates have repaid their obligated service before leaving active duty.

Leadership and Operational Assignments of USUHS Graduates Demonstrate that USUHS Has Met its Mission as Envisioned by Congress.

USUHS graduates are serving in key leadership positions in each of the uniformed services. USUHS graduates are consistently selected for below-the-zone promotions (earlier than usual); USUHS graduates frequently earn recognition for academic, clinical, and military accomplishments. Among those accomplishments are: the MacKay Trophy for the most meritorious flight by Air Force personnel; Air Force Flight Surgeon of the Year for 1986, 1987, 1988 and 1993; Navy Flight Surgeon of the Year for 1986, 1994 and 1995; Army Flight Surgeon of the Year for 1995; Army Physician of the Year for 1994; the Robert Woods Johnson Scholar for 1994; the Parke -Davis Teacher Development Award for 1995; and, the chief White House physician. USUHS graduates have participated and played key roles in numerous military and humanitarian operations at home and abroad, including: Operation Just Cause (Panama); Operations Desert Shield and Desert Storm; Operation Provide Comfort (Kurdish Relief); Somalia, Bosnia, Croatia, and Hurricanes Hugo, Andrew, and Marilyn relief operations; the 1993 mid-westem flood relief; the operations to restore democracy in Haiti, and the operational planning for medical support provided in response to the bombing of the federal building in Oklahoma City in 1995, the Japanese subway sarin gas attack, and the Zaire Ebola Virus outbreak. In March 1995, of the approximately 1,200 USUHS graduates on active duty who were eligible to hold leadership positions, and were not in a post graduate educational status, 282 of them were serving as chairs, chiefs or heads of departments, directors of services, or program directors in military hospitals, clinics or centers. An additional 220 USUHS alumni were serving in operational assignments for the three military services. These 502 USUHS-SOM alumni in leadership and operational positions represented approximately 42 percent of their graduating class membership.

Factors that Positively Influence the USUHS Retention Rates

There are four major factors that positively influence the USUHS retention rates: 1) the selection process; 2) the military unique curriculum and experience in a military setting; 3) a medical education in a military setting with emphasis on joint medical operations; and, (4) an average pay back period of twelve years.

The USUHS fourteen-step selection process focuses on leadership qualifications and a desire for public service. The USUHS courses, clerkships, and experiences in military settings (to include field and combat medicine) help to acclimate USUHS medical students to their careers as military medical officers and have been identified as a major factor in the extraordinary retention rates of the USUHS alumni.

USUHS medical officers are trained in a joint service environment that assures their operational management skills during joint medical operations in support of not only wartime missions, but also of peace keeping, drug enforcement, natural disaster and humanitarian missions. USUHS physicians are trained to provide medical care in austere operational settings; they are educated to play a key role in establishing and operating deployable medical treatment facilities. During summer training, the first and second year medical students experience the opportunity to train with combat arms officers and enlisted personnel and to learn special operational skills (i.e., airborne, air assault, scuba, etc.). USUHS graduates are educated to understand bow the DoD wartime medical care delivery system interfaces with the air medical evacuation system and theater evacuation policies in order to ensure that military forces receive appropriate treatment at each echelon (level) of care.

The Existence of the USUHS Positively Influences the Retention Rates of Physicians from Other Accession Sources.

As USUHS is the only federal medical school, it is logical to assume that the university would continue to be expanded and serve as an "academic center" for military medicine. The full re-accreditation in 1994 of both the University and the School of Medicine (SOM) is indicative of the fine academic credentials of the USUHS faculty and staff. The USUHS publication database, which became fully operational in October, 1995, has been developed and continues to be maintained by the Learning Resource Center (LRC) at USUHS. 608 articles were published by the USUHS community during 1994 and, at this time, 353 articles have been published in 1995. The majority of these publications are health science related articles retrieved by the LRC from publications such as the Science Citation Index. the Social Sciences Citation index, the Index to Scientific and Technical Proceedings, the Index to Social Sciences and Humanities Proceedings, the Index to Scientific Book Contents, and Medline. While the LRC database is comprehensive, it is not a complete record of all publications.

Research at USUHS covers such areas as infectious diseases, combat casualty care, wound healing, and factors which affect military performance and responses to the stresses of military life. Active-duty, **adjunct USUHS-SOM faculty members, throughout the military medical system, participate in these academic and research efforts. Currently, there are 3,078 non-billeted (adjunct) faculty assigned to the School of Medicine. Through this collaboration, the university continues to serve as an academic resource for those military medical officers who seek to advance their military careers and their knowledge of medicine.**

In addition to providing patient care and providing medical student and graduate medical education, the USUHS billeted and adjunct faculty serve as clinical scientists on agency advisory councils, National Institutes of Health study sections, and hold editorial and reviewer positions on scientific journal boards.

In summary, the importance of retention to military medical readiness cannot be overstated. The Military Medical System has continuously voiced its need for continuity, leadership, dedication to public service and an academic home for its senior medical staff.

The GAO report data substantiates that USUHS graduates have met the original intent of the establishing

congressional statute which called for a cadre of military physicians that would provide continuity for the uniformed services. " **GAO's analysis of DoD retention data shows that University graduates are likely to meet DoD's needs for an experienced cadre of military physicians while scholarship program graduates generally have shorter careers** " (GAO report, page 10).

3) Quality of the Medical Education Program at USUHS (Academic Activities)

Accreditation

The initial development of the USUHS SOM academic program was accomplished through the combined efforts of the USUHS Board of Regents, led by Mr. David Packard, and the USUHS president, Dr. Anthony R. Curreri. Activities used to develop the USUHS curriculum included committee meetings, retreats, and expansive consultation with a variety of experts from military medicine and civilian medical organizations and institutions.

The Liaison Committee on Medical Education (LCME) accreditation process is designed to certify that a medical program meets prescribed standards, and by awarding accreditation, the LCME indicates confidence in the quality of the medical school program. **The USUHS-SOM first received full accreditation status from the LCME, a joint activity of the Association of American Colleges (AAMC) and the Council on Medical Education of the American Medical Association, in 1979, and has maintained that status continuously to the present time**. LCME site visits occurred in 1977, 1978, 1979, 1985, 1991, and 1993. The next regularly scheduled accreditation review is expected in the year 2000. Since the first class graduated in 1980, 2,148 military physicians have graduated from the USUHS-SOM.

In addition to accreditation at the medical school level, **USUHS is also fully accredited at the university level by the Commission on Higher Education of the Middle States Association of Colleges and Schools (MSA/CHE)**. The MSNCHE is recognized by the U.S. Department of Education for accrediting institutions of higher education. USUHS received "candidate for accreditation status " from the MSN/CHE in 1977, and has retained full accreditation since 1983. Accreditation at the university level is important for the USUHS-SOM not only to attract highly qualified faculty and medical school applicants, but also because the LCME expects each accredited medical school to be a part of a larger accredited academic institution.

Graduate Programs

Accreditation standards are, in part, met through graduate education programs in the biomedical sciences. The USUHS-SOM first admitted graduate students in 1977. Currently, doctoral programs are offered in anatomy and cell biology, molecular and cell biology, biochemistry, clinical psychology, medical psychology, microbiology and immunology, neuroscience, pathology, pharmacology, medical zoology and physiology. Master's degrees are offered in public health and in tropical medicine and hygiene. Since 1977, of the graduate degrees awarded, 160 Doctor of Philosophy, 34 Master of Science, 18 Master of Tropical Medicine and Hygiene and 206 Master of Public Health have been conferred, for a total of 418 degrees.

All USUHS School of Medicine graduate programs, except for clinical psychology, are open to both civilian and uniformed applicants. Graduate students contribute time as teaching and research assistants. Uniformed services personnel accepted into graduate study may incur an additional service obligation. The doctoral program in clinical psychology, at this time, is open only to active duty uniformed personnel. **There are 112 students enrolled in graduate study at this time.**

Research

In Fiscal Year 1995, the USUHS-SOM faculty conducted research on more than 200 projects, with a value totaling more than $20 million, much of which was supported by competitive, extra-mural finding. While

these projects cover a wide area of biomedical research interests, USUHS-SOM faculty members conducted approximately 87 research projects specifically supported by other DoD agencies.

The magnitude and breadth of the research activities contribute greatly to the medical knowledge and technology base available to the DoD. **This research covers such areas as infectious diseases, combat casualty care, wound healing, factors which affect military performance, and responses to the stresses of military life**. The overall quality of this research is indicated by the fact that the SOM investigators maintained a success rate of 35 percent of applications that were funded by the National Institutes of Health during Fiscal Year 1995, whereas the overall success rate for all applications to the NIH was 25.4 percent.

The University has been an early advocate of the Federal Technology Transfer Program. The USUHS-SOM has distinguished itself in medical biotechnology research by achieving a unique distinction of having almost 100 percent of its patent portfolio under license. Faculty members of the Department of Surgery have been actively engaged in Advanced Research Projects Agency (ARPA) programs related to the development of information and telerobotics systems for the care of the injured.

USUHS SOM Graduates

To be licensed to practice medicine in the United States, all physicians must pass a three-step national licensure examination; the first two steps of the examination can be taken in medical school, and the third step cannot be taken until the internship year. For eleven consecutive years, USUHS medical students have had a higher average passing rate than the national average on both step one and step two of this licensure examination. Eighty-eight percent of all U.S. medical schools require the passing of step one, and 48 percent require the passing of step two, for promotion or graduation. Since this national examination is the only pathway to licensure for physicians, **the USUHS-SOM requires all of its medical students to pass steps one and two in order to graduate**. All USUHS-SOM graduates are then eligible to sit for the final step of the examination during their internship year.

In summary, the quality of the medical education program is reflected in the accredited status of USUHS. Both the university and the medical school have maintained full accreditation from authorized accrediting organizations since they have been eligible to hold such status. Another measure of USUHS-SOM's quality is its faculty which is highly productive in research and regularly published in critically reviewed journals. The magnitude and breadth of the USUHS SOM research activity contribute significantly to the medical knowledge and technology base available to the DoD. The USUHS SOM has been recognized for the quality of its medical education program by military medical leaders and other medical experts in congressional testimony and numerous publications. The statement of the American Medical Association to the Senate Appropriations Committee (April 14, 1994) describes USUHS as "a national asset." The AMA statement concludes: "...**the AMA strongly supports USUHS. ..Its mission and goals are consistent with the national interests and it unquestionably should be allowed to continue its existence. USUHS truly exemplifies the best in the federal government and should be identified for particular recognition and support, rather than closure."**

"GAO's analysis shows that the University provides a medical education that compares well with that of other U.S. medical schools. Traditional measures of quality place the University within the midrange of medical schools nationwide and its graduates at or above other military physicians. **In addition, to help meet standards required for accreditation as an academic institution, the University provides education and training for other health care and related professions and engages in research, consultation, and archival activities**. These activities, which do not directly contribute to the education of military physicians, involve University faculty and staff. University officials believe that DoD would continue to conduct these activities even if the University is closed and estimated their value to be about $18.6 million ..." (GAO report, page 4).

4) The Special Needs of Military Medicine

General Background

Armed forces physicians, survivors of military combat, and advocates of military medicine generally recognize that there is a body of knowledge unique to the medical problems and the special needs of military units, either in field or in garrison, and that this knowledge base is different from that required in a civilian medical practice. During deployment, one encounters the effects of modem weapons, the stress of continuous operations, and the noise, toxins, and other hazards of the operational environment. The military physician must deal with the realities of risk assessment, prevention, medical evacuation, and the clinical management of resulting diseases and injuries. In garrison, the military physician must display a solid understanding of the social and occupational milieu in which his patients must work, to include determining both long and short term fitness for duty, dealing with the unique family stresses of the military environment and also with the legal and regulatory systems that support the military environment. **These requirements do not occur in the civilian setting.**

The military physician, besides having competence in general medicine, must have additional skills and knowledge in the specialty areas of preventive medicine, trauma management, behavioral sciences, environmental medicine, and tropical infectious diseases. **The military physician must be able to move comfortably between fixed and deployed medical facilities and provide quality medical care in both.**

At least three other categories of basic knowledge are essential to military leadership and military medical readiness: knowledge of operational environments, military operations, and military organizational structure.

The military medical system has two principal objectives. In peacetime, it maintains military forces fit to fight. In combat, it conserves the fighting strength through counter measures directed at the prevention of disease and injury and through treatment at the lowest possible echelon of care, with a view toward rapid return to duty of sick or injured individuals. **Attainment of these objectives or special needs requires special military and medical training for medical personnel, and special medical organizations able to accompany and support military units as they carry out their missions.**

Combat Operations

As a unit surgeon, the military physician must understand military operations, military staff planning and administrative processes, the enormously varied military work environments, and the natural and manmade hazards that military personnel may encounter. In order to ensure medical readiness, the military physician must be proficient in medical planning and the employment of the various elements of the deployable medical system. As the medical advisor to a commander, the military physician must be able to oversee the medical activities required to maintain the health of the deployed forces (i.e., the coordination and logistics of field sanitation management). Chief among the common features of modern military medicine is an emphasis on prevention. The main purpose of medical support is to conserve combat power. **Avoiding unnecessary losses of manpower to illness and accident preserves the strength of the unit prior to battle. Extensive immunization, sanitation, and safety programs are characteristic of military medical care.**

Psychological Stress

Medical care plays a critical role in preserving the morale and in treating the consequences of traumatic stress in troops. Modem soldiers intellectually accept the risk of injury as one of the realities of combat. Much of the psychology of combatants, however, consists of psychological defense mechanisms aimed at keeping the realization of this risk at a distance. **The military medical system supports these psychic defenses by giving the combatant a sense of confidence that he or she will receive care if wounded, by removing casualties from the battlefield, and by bolstering adaptive coping processes**. Through the support of these psychic

defenses, the military medical system helps to build the troop's positive morale, the will to fight, which is essential to the military commander's objective of winning.

Military Medical Research and Development

Military medical research is conducted in both the community-based and deployed medical care systems. Operational medical problems are addressed by the medical research and development establishment of each of the military services. These mission-oriented research programs are organized in four general research areas: (I) infectious and tropical diseases; (2) combat casualty care; (3) health hazards of military systems and operations; and (4) medical defense against nuclear, biological, and chemical weapons.

In summary, the Military Medical System is a complex organization with enormously challenging missions and requirements. Medicine, as practiced in civilian settings, is NOT the same as medicine practiced in the military.

USUHS Physicians Are Successfully Trained to Meet the Unique Requirements of the Military Medical System and of Military Medical Readiness

According to the GAO report of June 1993, Army medical officials reported that medical personnel have limited time to participate in, and often do not attend, readiness training due to heavy patient work loads, budgetary constraints, and efforts to contain CHAMPUS costs. **All of the USUHS physicians receive military medical and readiness training BEFORE they become critical to the military health care system as patient care providers.**

The Gulf War validated the need for readiness and mobilization training. The GAO and DoD Inspector General (IG) reports following Operations Desert Shield and Desert Storm noted serious concerns with the overall DoD medical readiness capabilities.

In the Army:	"Many doctors and nurses had not trained during peacetime to perform their wartime missions"
In the Air Force:	"Many personnel had not been adequately trained for deployment conditions; medical personnel arrived in theater with only limited training ..."
In the Navy:	"The medical personnel arrived in theater without adequate training for chemical, biological and radiological defense."
Reserve Medical Force:	"The lack of readiness and training of the reserve medical force (some 70 percent of the mobilization force) is noted by the GAO reports.

USUHS physicians were assigned to the Gulf and Somalia. Their high level of performance and deployability due to the USUHS educational programs were validated by the three Surgeons General and the Assistant Secretary of Defense for Health Affairs during congressional testimony. The senate hearings in March and April of 1994 serve as confirmation that the USUHS graduates meet the special needs of military medicine.

In summary, the extensive, military unique training at USUHS was described as essential by the Surgeons General for the following reasons: the USUHS graduates were immediatelv deployable to combat areas and were able to utilize their military combat, field sanitation, and preventive medicine training during Operations Desert Shield and Desert Storm; USUHS graduates volunteered for service with

forward combat units, such as Special Forces Units; USUHS graduates understood the mission of their units and were able to quickly adapt to the lack of modern conveniences, equipment and military life in the field; USUHS graduates understood and successfully coordinated, in the joint service environment, with the organization of medical systems in the three Services; USUHS graduates were able to develop training programs in unconventional warfare, such as chemical and biological threats which increased confidence and decreased anxiety in their troops; and USUHS graduates provided continuity, leadership, and experience due to their extensive military training and retention rates.

The GAO findings in its report of September 1995 confirm that **USUHS graduates have met the original intent of the congressional statute that recognized the need for military physicians to provide continuity, leadership and experience in order to meet the special needs of military medicine.** "**Forty-three** (out of 44, none of whom are USUHS graduates) **commanders of major military medical units perceived that physicians from the University have a greater overall understanding of the military, greater commitment to the military, better preparation for operational assignments. and better preparation for leadership roles.**" **They also said that they** "**perceive that University graduates have a better appreciation of and greater satisfaction with the physicians's role within the military**" **(GAO report, page 43).**

5) USUHS Response to the IG, DoD, Inspection Report, Including Issues Relating to the Henry M. Jackson Foundation for the Advancement of Military Medicine

In a 1990 inspection report, the IG, DoD, recommended 36 actions to improve operations at USUHS. The issues ranged from management oversight of administrative functions to more secure access to the laboratory animal facility. In total, the corrective actions took place over four years. **By correcting deficiencies in administrative functions, USUHS brought all operations in line with DoD policies and procedures.** In some instances, the improvements exceeded the IG, DoD recommendations.

With regard to the issue of the USUHS staffing relationship with the Henry M. Jackson Foundation (a statutory, non-profit foundation), **the USUHS severed all informal ties with, and in support of, the Foundation, and replaced all such associations with formal, negotiated Inter -Service Support Agreements signed by both the USUHS and the Foundation**. This action conformed with a recommendation by the Defense Finance and Accounting Service. In the contracting relationship with the Foundation, USUHS implemented controls and procedures to assure adherence to both the Federal and the Defense Acquisition Regulations. Also, the Defense Contract Audit Agency (DCAA) became the cognizant audit agency for negotiation and approval of the Foundations's indirect cost rate, a function that DCAA performs each year.

The IG, DoD, " **closed the inspection in October 1994 based on the University's corrective actions**" (GAO report, page 3).

6) Review of the Educational Experience at USUHS (A GAO Requested Tasking)

Educational Program

The military unique curriculum at the USUHS-SOM and the integration of militarily-relevant material into traditional medical school subject areas combine to produce a fully accredited four-year program leading to the M.D. degree. The USUHS-SOM curriculum requires 174 scheduled weeks, which is about 20 weeks longer than the average length for other U.S. medical schools. The traditional medical school curriculum is complemented by instruction in military medical subjects and by required participation in a variety of practical military experiences. The USUHS cumculum provides extensive experience in emergency medicine and trauma care and the military aspects of preventive medicine, public health, behavioral medicine, plus military medical leadership.

The curriculum at the USUHS-SOM, by virtue of both: 1) the inclusion of specific military medical courses and 2) the integration of militarily-relevant subject material into practically every course, produces military medical officer graduates who are far better prepared than their counterparts from other U.S. medical schools to immediately assume division, wing, and task group medical command and staff responsibilities in the combat medical support organizations of the military departments.

The Military Unique Curriculum at the USUHS-SOM

Three departments, Military and Emergency Medicine, Preventive Medicine and Biometrics, and Medical History have the major responsibility at USUHS for teaching the military unique course material, i.e., material that would not be found in the curriculum of any other U.S. medical school. Significantly, the current chair of each of these academic divisions is a retired military medical officer with extensive military medical experience to guide curriculum development and content.

In addition to the usual first-year medical school courses, students at USUHS-SOM have required courses in military studies, military medical history, tropical medicine (diagnostic parasitology and medical zoology) and epidemiology, utilizing military data and case studies. This provides an introduction to the scope and content of military medicine and exposes each student to all of the medical systems within the uniformed services. The focus is on the delivery of preventive and treatment services in the "field" or deployed environment. **By the end of the first academic year, each student has completed course work and experiences considerably greater than those required in the Basic Medical Officer Course for any of the uniformed services.**

Between the first and second year, all students participate in the required five-week course, "Military Medical Field Studies." This includes a ten-day field exercise focused on small unit leadership, combat survival skills, and military medicine at First Echelon (Unit) level, followed by a four-week, supervised experience in an operational unit of their parent service performing duties appropriate to their rank. During this same period, twenty-five to thirty -five percent of each class will elect and successfully complete one of the following military qualification schools: Basic Airborne Training; Basic Air Assault School; Survival, Evasion, Resistance, Escape (SERE); Underwater Operations (SCUBA); or, Expert Field Medical Badge (EFMB).

During the second year, students have additional hours of preventive medicine, including an introduction to operational (field) preventive medicine; health promotion in the military; physical fitness programs, policies, and implementation strategies; environmental and occupational health; and health services administration. **The second year course in military studies focuses on two general areas: the science base for the practice of military medicine (wound ballistics, weapons effects, toxic hazards, and psychological stress) and the command and staff functions of military medicine in Joint Commands (medical planning, medical logistics, medical evacuation systems, and blood programs).** The medical ethics course includes extensive material directly related to military medicine including the special concerns with sending soldiers back to combat, treatment of prisoners and civilians, and limitations imposed by the Geneva conventions. Other material stresses the resolution of hospital based ethical problems in federal institutions.

The third-year cumculum consists of clerkships in the principal specialties of medicine. **Much of the instruction is provided by uniformed clinical faculty with an emphasis on teaching the special military relevance of the various clinical experiences**. Of special note are the military clinical settings for instruction (military tertiary medical centers, military community hospitals, military outpatient ambulatory care clinics, troop dispensaries on active military bases) and the patient population which includes active duty personnel presenting diseases and injuries incurred during both training and combat deployments.

In the fourth year, the Military Preventive Medicine Course places students in a simulated Joint Task Force where they are the medical staff for each of the component commands (Army, Navy, Air Force and Marine Corps). This scenario is carried into the four-week Military Contingency Medicine Course which focuses on medical support at first and second echelon levels (prehospital) for military forces deployed on combat,

peacekeeping, or humanitarian assistance operations. Included is a five-day, continuous operations field exercise, "Operation Bushmaster, " where students operate battalion aid stations and a medical company under simulated combat conditions while receiving multiple evaluations of medical unit leadership, preventive medicine and patient care, medical planning, and administrative and logistic skills.

Military Emergency Medicine, one of the few required four-week emergency medicine clerkships found in all American medical schools, provides opportunities to utilize the skills in Basic Life Support (BLS), Advanced Cardiac Life Support (ACLS) and Advanced Trauma Life Support (ATLS) developed in the USUHS-SOM Military Contingency Medicine course. Both ATLS and ACLS are courses aimed at graduate physicians. **The USUHS-SOM is the only U.S. medical school which requires these courses of ALL students.**

Within the fourth -year elective program, there are numerous opportunities for international experiences in both civilian and military institutions, attendance at U.S. Army and U.S. Air Force aviation medicine courses, and assignments to operational military units or military medical research activities.

Integration of Militarily Relevant Material into the Traditional Curriculum

In addition to the military unique curriculum, the USUHS-SOM academic departments and faculty have structured courses to include: topics specific to military medicine and not covered in the traditional medical school cumculum; topics relevant to military medicine that receive more coverage than in the traditional cumculum; and, teaching examples and cases drawn from military medicine. This content focus is reinforced **by the fact that many of the faculty (one third of the billeted basic science faculty and two thirds of the clinical faculty) are uniformed officers of the Army, Navy, Air Force and the Public Health Service, who provide experience and contextual correlations to their teaching of traditional topics. The faculty of the USUHSSOM produced a detailed analysis of the extent to which militarily specific or relevant topics and teaching cases are integrated into the preclinical and clinical curriculum.**

In summary, the **USUHS-SOM curriculum includes** not only the content required for accreditation at all U.S. medical schools, but also **unique courses and experiences** with topical emphasis, teaching examples, and cases **not found in other schools of medicine.** However, the unique aspect of USUHS is not just the curriculum, but the total educational and acculturation environment that has been developed to produce career oriented military medical officers with a knowledge base, skills, and attitudes that cannot be obtained through short courses or episodic medical readiness training and who are prepared to work effectively in the joint military operational environment of the future. **It is also clear that this special educational experience, which meets the mission set by the Congress of the United States, cannot be provided by any other combination of existing civilian medical schools with the military medical training courses currently available.**

The GAO report points out that 734 hours of initial military education and medical readiness training is provided at USUHS and that similar training that is provided to the HPSP graduates ranges from 50 to 155 hours, depending upon the Service (GAO report, pages 41, 42 and 74).

III. OTHER PRODUCTS OR SERVICES OF USUHS

Graduate Medical Education

In 1986, the Office of the Assistant Dean for Graduate Medical Education (GME) Liaison was established to provide consultation on GME programs (internship, residency and fellowship training for physicians) for program directors and the Office of the Assistant Secretary of Defense for Health Affairs (OASD/HA). In 1991, this office was elevated to the level of Associate Dean for Graduate Medical Education. Since 1986, USUHS GME has expanded to provide DoD-wide consultation and oversight for ten USUHS-SOM sponsored or cosponsored GME programs. The USUHS-SOM Office of GME is also involved in the newly created National

Capital Military Medical Education Consortium which generates additional GME-related taskings from OASD/HA.

For the past several years, the USUHS Office of GME has been identified by OASD/HA as a key element in the revision and integration of DoD GME programs. The following responsibilities have been assigned to the USUHS GME program:

-Continue to sponsor or cosponsor selected GME programs;
-Continue to be the academic affiliate for many GME programs;
-Expand consultative services to insure that accreditation is not jeopardized when DoD GME programs are integrated;
-Assist with the implementation of a plan to select qualified program directors and play a role in the ongoing selection and evaluation of GME program faculty;
-Assist with the implementation of a plan to continually collect and evaluate data and information on DoD GME programs to ensure academic and scientific excellence;
-Actively serve as a major academic affiliate in developing high quality uniformed GME physician faculty for all services;
-Participate in the development and implementation of the overall OASD/HA plan to integrate GME programs and faculty and to have an intra -DoD resident matching system;
-Participate in the selection of trainees;
-Continue significant and critical support to military GME programs in the National Capital Region (NCR) in the form of faculty supervision of trainees, support or Residency Review Committee (RRC) mandated research, curriculum enhancement, faculty development, and direct patient care; and,
-Advise on militarily unique GME curricula.

Continuing Health Professional Education

Under Title 10, U.S. Code (Section 21 13), USUHS is mandated by Congress to "establish programs in continuing medical education for military members of the health professions to the end that high standards of health care may be maintained within the military medical services."

The USUHS Office of Continuing Health Professional Education (CHE) performs a significant role in facilitating the continued professional growth of health care professionals in the uniformed services. The principal responsibilities of the office are the identification of educational needs, planning, implementation, and evaluation of continuing health professional education and resuscitative medicine programs for members of the health professions.

CHE is also responsible for the acquisition and maintenance of USUHS CHE accreditation and of trauma and resuscitative medicine training program affiliations. USUHS has recently received the maximum of six **years accreditation by the Accreditation Council for Continuing Medical Education. Because the USUHS Office of CHE brings medical training to the medical health care professionals, cost-avoidance is generated for the DoD by eliminating extensive travel expenses and time away from the hospitals and clinics.**

In carrying out its principal responsibilities in Fiscal Year 1995, CHE provided 166 accredited programs for Continuing Medical Education (CME) with an attendance of 4,483 physicians. CHE provided 23 accredited nursing programs with an attendance of 2,432 nurses.

The Military Training Network (MTN), as part of the CHE Directorate, provides coordination, administrative, support and quality assurance of resuscitative medicine training programs for the uniformed services. Cardiopulmonary arrest and trauma are the most frequent forms of medical emergencies in the civilian and military communities. Knowledge of life-saving skills in uniformed and civilian medical personnel is vital

to maintain operational readiness, safe work environments and daily medical care within the military.

In 1982, MTN became the American Heart Association (AHA) affiliate for cardiac resuscitation for the uniformed services; this included Advanced Cardiac Life Support (ACLS) and Basic Life Support (BLS). Pediatric Advanced Life Support (PALS) was added in 1989. The training for Fiscal Year 1995 reflects as follows: ACLS, 166 organizations and 8,909 trained; BLS, 234 organizations and 172,916 trained; and PALS, 64 organizations and 3,207 trained.

In Fiscal Year 1995, Advanced Trauma Life Support (ATLS) training was provided for 1,908 personnel, representing 12 organizations; Advanced Bum Life Support (ABLS) training was provided for 301 personnel, representing 2 organizations; and, the Trauma Nurse Core Course (TNCC) provided training for 967 personnel, representing 5 organizations. In Fiscal Year 1995, the USUHS MTN generated cost avoidance for DoD by centralizing the administration of resuscitative medicine courses, the procurement of course materials, and the payment of student fees.

The Video Endoscopy Program provided another example of the USUHS generated cost avoidance for the DoD. In 1995, over 250 surgeons were trained in this valuable program generating cost avoidance for the DoD due both to the avoidance of tuition costs and to the expeditious return of uniformed personnel to duty after surgery.

The U.S. Army (the Landstuhl Regional Medical Center and the 18th Medical Command) and the U.S. Navy (Western Pacific Program) **realized significant cost savings by contracting with USUHS** to coordinate the presentation of programs of targeted issues for specific audiences near their facilities in Germany, Korea, Guam, Yokosuka, and Okinawa.

At the 101st annual meeting of the Association of Military Surgeons of the United States (AMSUS), 1,696 nurses and 862 physicians received continuing education credit for participation in the conference.

The Relationship Between USUHS and the Military Hospitals

The Association of American Medical Colleges recognizes that **teaching hospitals make " essential contributions to the missions of academic medicine by historically providing: the highest quality, most advanced patient care; inpatient and outpatient care training sites for physicians and other health care professions; and an indispensable venue for scientific discovery and significant research. "**

USUHS has a wide range of affiliations with the following teaching/military hospitals:

Bremerton Naval Hospital
Brooke Army Medical Center
David Grant Air Force Medical Center
DeWitt Army Hospital
Eglin Air Force Regional Hospital
Eisenhower Amy Medical Center
Elmendorf Air Force Regional Hospital
Jacksonville Naval Hospital
Keesler Air Force Medical Center
Kimbrough Army Community Hospital
Madigan Army Medical Center
Malcolm Grow Air Force Medical Center
Martin Army Community Hospital
National Naval Medical Center
Offutt Air Force Hospital
Pendleton Naval Hospital
Pensacola Naval Hospital
Portsmouth Naval Regional Med Center
San Diego Naval Hospital
Tripler Army Medical Center
Walter Reed Army Medical Center
Wilford Hall Air Force Medical Center
William Beaumont Army Medical Center
Womack Army Medical Center
Wright-Patterson Air Force Med Center

USUHS medical students perform their third year clinical clerkships at sixteen military hospitals, representing all military services. **The third year class of approximately 165 students has eight required clinical clerkship rotations of six weeks each, for a total of 1,320 third year rotations. The fourth year class of approximately the same size has ten four-week blocks for 1,650 rotations**. As a part of their training and work as medical clerks, USUHS-SOM third and fourth year students, in a supervised setting, provide patient care-related services in these hospitals during each calendar year. Such services provided include examination of patients, providing post-operative care, organization and maintenance of the completion of the medical history and physical examinations of patients, assistance at surgery and delivery of newborns, and updating progress notes in patient records.

Six of the major USUHS academic departments - Internal Medicine, Surgery, Obstetrics and Gynecology, Pediatrics, Psychiatry, and Neurology - use the Walter Reed Army Medical Center and the National Naval Medical Center as major clinical instructional sites. In addition, students take clerkships at other teaching hospitals affiliated with the USUHS-SOM, such as the Portsmouth Naval Hospital, Malcolm Grow, Wilford Hall, the Keesler and Wright Patterson Air Force Medical Centers, Tripler Army Medical Center, and the Brooke Army Medical Center. The USUHS-SOM Department of Family Practice sends students to eight hospitals in addition to the Malcolm Grow Air Force Medical Center.

It is well-recognized in the field of medical education that accredited post-graduate training programs must include opportunities for interns and residents to acquire and practice teaching skills that enhance their own learning and develop their skills at teaching patients about their own health. They teach at the patient's bedside during work rounds, present topics at department or subspecialty conferences or rounds, teach in journal clubs to remain current with the medical literature, and teach a wide variety of skills to medical students.

Opportunities to practice teaching skills are considered important to the education of interns and residents for two reasons. First, much of how one learns to practice medicine goes beyond the textbook presentation; rather, it is acquired from the teaching of experienced clinicians in clinical settings. Therefore, **as a part of their professional development, interns and residents must learn to teach colleagues and those junior to them. Second, the work required to prepare themselves to teach others provides a special challenge to physicians to expand their knowledge base and transmit that knowledge to others. USUHS medical students receive much of their education in clinical clerkship rotations from housestaff and residents.**

Many uniformed and civilian faculty of the USUHS-SOM who are on staff in the school's affiliated teaching hospitals consistently demonstrate an ongoing commitment to research. For example, USUHS faculty members made up a substantial proportion of the principal and associate investigators on over 150 research protocols initiated at the Walter Reed Army Medical Center during the past few years, to include the congressionally mandated and funded closed head injury and spinal cord injury programs. Most of these studies were on human subjects and a number were based on participants in collaborative group studies. Similar programs of varying size exist at the other major teaching hospitals. Researchers at these sites obtain funding through their respective services, the Henry M. Jackson Foundation, the National Institutes of Health, and other granting agencies. A number of USUHS-SOM faculty are located at the Walter Reed Army Institute of Research, the Armed Forces Radiobiology Research Institute, the Naval Medical Research Institute and the National Institutes of Health.

As recently reported to the GAO in March 1995, **an analysis of USUHS billeted military and civilian faculty time devoted to clinical service reflected a generated cost avoidance to the DoD totalling over $6.5 million per year.**

IV. THE UNIVERSITY'S EXPANDED MISSIONS

The Graduate School of Nursing

The USUHS received a congressional mandate and one million dollars in the 1993 Defense Appropriations Act to "begin planning and implementation of a training program for nurse practitioners. " This was interpreted to include the various disciplines within the field of advanced practice nursing. Thus, planning and implementation have resulted in a Graduate School of Nursing (GSN) to prepare advanced practice nurses for the uniformed services. The USUHS received $2 million in Fiscal Years 1994 and 1995 for the continued operations of the GSN. Current language in the Defense Appropriations Bill also funds the program for Fiscal Year 1996.

A needs assessment study was completed by the GSN with the advice and assistance of the Federal Nursing Chiefs. The study confirmed that there is a tremendous need in the DoD and the United States Public Health Service (USPHS) for Advanced Practice Nurses (APNs), particularly certified registered nurse anesthetists. The need has been documented to be so acute (more than 15 percent of the billets for APNs are currently unfilled) that the GSN programs and the individual services' recruitment programs will only partially satisfy the requirement.

The USUHS-GSN consists of two programs, the Family Nurse Practitioner (FNP) Program and the Nurse Anesthesia (NA) Program. Both are built on a **core curriculum** of theory, role, research, and basic science courses **that is structured to permit specialty areas to be added as needed by the uniformed services**. The FNP Program admitted three U.S. Public Health Service (USPHS) students in August, 1993, two of whom graduated in May of 1995. Ten additional FNP students were admitted in August of 1994 and 7 were admitted in August, 1995. The NA Program admitted eight students in June, 1994, who are now in the off-campus clinical phase of their program. Eleven additional NA students were admitted in June, 1995. Both programs grant the Master of Science in Nursing (MSN) degree.

Admission to the GSN is open to qualified commissioned registered nurses in the uniformed services who receive authorization to participate in graduate education programs under the sponsorship of their parent organization. **Students incur an obligation for additional uniformed service in accordance with the regulations of their parent organization.**

Accreditation for the GSN is in progress and will be granted by the National League for Nursing (NLN), the primary accrediting body for all nursing programs in the United States. In April, 1994, the NA Program was granted full accreditation by the Council on Accreditation (COA) of Nurse Anesthesia Educational Programs, permitting the admission of students to the program.

The FNP program consists of 21 months of full-time combined didactic and clinical experiences. The FNP program uses a life-span case study methodology approach to develop differential diagnosis and critical thinking. The 620 clinical hours of practice are in both civilian and military agencies with experienced nurse practitioner or medical physician preceptors. This program meets or exceeds the revised 1995 National Organization of Nurse Practitioner Faculty guidelines for NP programs. Program faculty are all experienced as both NP clinicians and graduate level NP educators. The NA program is a 27 month program with three semesters of didactic curriculum followed by 16 months of clinical anesthesia practicum. The program is accredited by the Council on Accreditation of Nurse Anesthesia Educational Programs (COA). The didactic curriculum is taught by faculty of the USUHS-GSN and SOM and by adjunct faculty from clinical anesthesia departments of both military and civilian hospitals. There are presently two primary clinical sites and four clinical affiliations for the implementation of the clinical practicum. The faculty consists of two doctoral prepared nurse anesthetists, two basic scientists and several adjunct nurse anesthetists.

During June, 1994, the Department of Nursing Research was added to the GSN. This addition

strengthens faculty input in advising students who are developing their masters thesis as well as assisting faculty in the development of research proposals. In addition, the GSN has a direct link to the Tri-Service Nursing Research program which involves multiple DoD-funded nursing research grants. GSN faculty are expected to spend a portion of their time on research.

In accordance with the congressional mandate, the USUHS-GSN prepares advanced practice nurses at the graduate level to deliver primary and chronic care, including anesthesia services, to active duty members of the uniformed services, their families and all other eligible beneficiaries. **GSN students experience a curricula with an operational medical readiness focus and a high basic science content that produces graduates with the ability to deliver care in a wide variety of settings and communities**. GSN graduates are equipped to contribute to the uniformed services' peacetime health care delivery systems and to provide military and Public Health Service medical support to combat operations, civil disaster and humanitarian missions. They can serve in hospitals and air evacuation units in the combat zone of a theater of operations under austere and harsh conditions, at sea on ships of war, or in isolated areas of the United States and other countries where other health care providers may be non-existent. The major emphasis of the curriculum is on the nursing perspective of health promotion and disease prevention within the context of primary care in the uniformed services. Jointness and leadership training are key elements of the GSN curricula that are presented to students representing the Army, Navy, Air Force and the United States Public Health Service. **GSN students train in a joint environment that is critical for the medical team concept as evidenced during Operation Desert Storm. Such preparation is NOT available in the civilian nursing educational programs.**

Also, the GSN is an excellent source of cost avoidance for the uniformed services. For example, in the Public Health Service, in one service area, the 1994-95 cost of contracting for one certified registered nurse anesthetist (CRNA) averaged between $170,000 to $180,000 per year. If the Indian Health Service had a CRNA commissioned officer to assign, the cost would have been approximately $60,000 per year.

The Traumatic Stress Center

Research and consultation in psychiatric responses to trauma and disasters is a major component of the mission of the Traumatic Stress Center. Consultation is active, ongoing and related to the collection of data and the development of recommendations for operational implementation. Consultation is established with both local commanders and headquarters elements. Teams are constituted from faculty at USUHS and affiliated teaching hospitals as well as local medical and health care personnel. **On-site teams collect data and establish relationships to provide ongoing consultation to commanders and civilian community leaders and to facilitate longitudinal follow-up after disasters and traumatic events.**

Traumatic Stress Center activities have involved psychiatric consultation and the development of lessons learned in the following situations:

-USS Iowa gun turret explosion: care for body handlers, 1990;
-The Persian Gulf War, 1990/91
(Psychiatric care for prisoners of war, Psychiatric care in military hospitals for the physically injured, Psychiatric care for psychiatric casualties, Stress and coping on the USNS Comfort Hospital Ship during the Persian Gulf War);
-The effect of the Persian Gulf War on first-term enlisted wives in the U.S. Army, 1991;
-The effect of the Persian Gulf War on the crew of the USS Wisconsin, 1991;
-The psychiatric effects of mortuary care operations on the U.S. Army, U.S. Air Force and U.S. Navy personnel, 1991 ;
-Psychological effects of motor vehicle accidents, 1991;
-Joint DoD-Veterans Affairs assessment of psychiatric casualties resulting from the Persian Gulf War, 1991;

-World Health Organization consultation to Yugoslavia, 1991;
-Operation Desert Storm Syndrome in Reserve Units, 1991;
-Psychological effects of Hurricane Andrew on USAF members and their families, 1992;
-Effects of Hurricane Omar and following earthquake on USN families, 1993;
-Consultation with the National Academy of Sciences on the effect of Chemical and Biological Warfare in World War II, 1993;
-Traumatic effects of breast cancer on husbands, 1993;
-Air Disaster in the 128th Air Refueling Group, 1993,94;
-Consultation to the Los Angeles Earthquake Areas, 1994;
-Consultation to NIH, National Academy of Sciences and the DoD on Psychological effects of toxic exposure in the Gulf War, 1994;
-Consultation to the Fairchild AFB Disaster, 1994;
-Consultation to the Navy Aerospace and Operational Medicine Institute: prisoner of War Studies;
-Consultation to the Air National Guard elements involved in disaster work after the U.S. Air Crash in Pittsburgh, Pennsylvania, 1994;
-Technical Report: Responses to Disaster and War: Hurricane Andrew; ODS mortuary, Waco, Texas, 1994;
-DoD-Wide Conference on Women in the Military: Combat Deployment and Contingency Operations, 1995;
-Book: Individual and Community Responses to Trauma and Disaster: The Structure of Human Chaos, Cambridge University Press, 1994;
-Book: The Persian Gulf War: Nations and Communities, Soldiers and Families, American Psychiatric Press, Inc., 1995; and,
-Book Acute and Long-Term Responses to Trauma, American Psychiatric Press, 1995.

The Centers for Preventive Medicine and Public Health

The Centers for Preventive Medicine and Public Health, an entity within the Department of Preventive Medicine and Biometrics, operates under terms of a memorandum of understanding with the Henry M. Jackson for the Advancement of Military Medicine (HJF). Combining broad expertise in research, consultation, education, training, and clinical preventive medicine and public health, it develops databases and analytic methodologies, prepares innovative curricula, and evaluates processes and outcomes in clinical practice. The following Centers have been established:

- Center for Environmental Health Sciences and Policy
- Center for Foreign Area Medical Studies
- Center for Health Care Quality Assessment and Improvement
- Center for Health in Extreme Environments
- Center for Landscape Epidemiology
- Center for Environmental and Occupational Health
- Center for Training and Education in Addiction Medicine
- Center for Telemedicine Evaluation.

The Centers serve program managers and policy makers in the Department of Defense, other federal agencies, local governments and private organizations concerned with health policies and service.

Graduate and Continuing Education in Preventive Medicine

Public Health graduate education programs (Master of Public Health [MPH], Master of Tropical Medicine and Hygiene [MTM&H], Doctor of Public Health [Dr.P.H.] and Doctor of Philosophy [Ph.D.] are **designed to train uniformed services officers in the advanced skills and knowledge required to pursue careers in military preventive medicine and community health**. PMB has collaborative education agreements

with the Walter Reed Army Medical Center Internal Medicine Fellowship Program, the Army program in Health Services Administration, the Army/USPHS Laboratory Animal Medicine Program, the Navy Dental Research Institute and the Indian Health Service. The Department also offers residency training programs in occupational medicine and preventive medicine.

PMB has been designated by the Institute of Medicine as one of eight tropical medicine centers of excellence and was recently one of only six universities to be certified by the American Society of Tropical Medicine and Hygiene for its new training program in Tropical Medicine. In order to maintain that status, PMB must continue to expand its academic and research programs. This expansion is also needed to sustain the requirements of the graduate program to provide research products of pertinence to the DoD.

The Interservice Training Review Organization was mandated by Congress to consolidate DoD training programs. **After three years of deliberation, investigation and planning, the decision was made to consolidate the United States Military Services' tropical medicine training programs at USUHS .... the Tri-Service Advanced Military Tropical Medicine Course**. The first class will be offered in the summer of 1996. Under the auspices of the USUHS-SOM Department of PMB, DoD personnel will be educated and trained in tropical infectious diseases, which is part of medical readiness training for foreign military operations.

The PMB Division of Health Services Administration is currently in a rapid growth phase. This PMB division is a center for medical outcomes research and the application of the principles of clinical epidemiology to health services management. In addition to an extensive research activity and ongoing classroom instruction, continuing education and technical assistance to the graduates of the training programs are also provided. **A Health Services Administration track of the MPH degree has been developed for commanders of military training facilities. The services have voiced their requirements for this program.**

The Casualty Care Research Center

The Casualty Care Research Center (CCRC), was established in July 1989, under the USUHS-SOM Department of Military and Emergency Medicine as a center of excellence for injury control and casualty care research. In keeping with the **overall mission of the University, the CCRC conducts research and investigations of issues relating to injury control, casualty care, operational and disaster medicine; provides medical students, graduate physicians and other uniformed medical personnel with a disciplined, educational, research experience in combat casualty care, injury epidemiology, trauma management, and related areas**; maintains a strong collaborative relationship with other federal, state and local agencies which share common interests in casualty care and operational medicine; **serves as a repository of resources and information relating to injury control, injury epidemiology and operational medicine for the uniformed services community**; and, provides research, resource and educational support, technical assistance, and other community service to USUHS, the uniformed services, and other federal, state, and local elements.

The Wound Data and Munitions Effectiveness Team (Vietnam) database (WDMET) is maintained by the CCRC. It contains information on the tactical engagement, weapons employed, resulting injuries and treatment in the pre-hospital and hospital environments on approximately 8,000 combat casualties. **It is the ONLY collection of its kind in the world**. Photographs, medical record, X-rays, recovered bullets and fragments truly make this a unique resource.

An " archive plan" has been implemented in accordance with the CCRC strategic plan. The CCRC has responded to more than 24 requests for archival and research support from the military services and other agencies.

The Counter Narcotics Tactical Operations Medical Support (CONTOMS) program was initiated by the CCRC at the end of Fiscal Year 1990. Personnel from approximately 406 agencies in 47 states have graduated

from the program. In the congressional report, "Fighting Drug Abuse: New Directions for Our National Strategy," **the program was singled out as an example of "an initiative (which) has produced positive results and should be expanded.**" (Fighting Drug Abuse: New Directions for Our National Strategy, prepared by the Majority Staffs of the Senate Judiciary Committee and the International Narcotics Control Caucus, February, 1991 , p. 39).

The CCRC provided extensive consultation and support to the Joint Chiefs (J-4 Medical Readiness) relating to the issue of casualty. data information management during Operation Desert Storm and is now funded to coordinate the process of data collection during multiple casualty events. The CCRC is currently supported by extramural funding. Personnel within the USUHS Department of Military and Emergency Medicine participate in various activities of the CCRC based on their professional interests and as their teaching and clinical responsibilities permit.

Telemedicine

USUHS has been actively participating in telemedicine demonstration projects since the early 1980's when it participated in original research on teleradiology. The demonstration projects are aimed at providing modem medical and surgical technology to isolated, even primitive areas. **In one demonstration project, the University served as a demonstration test platform for the Army Surgeon General's telemedicine bridge to Somalia**. Using high definition digital still cameras, off-the-shelf personal computers, and INMARSAT telephone links, physicians at field facilities in Somalia could examine patients, photograph observed conditions, annotate the photos, and transmit them to waiting specialists at USUHS and at the Walter Reed Army Medical Center. **This telemedicine system was also used more recently in support of teaching a class in emergency medicine through an interactive link with a field hospital in Croatia.**

In a separate project, the Department of Military and Emergency Medicine developed a telemedicine course to train corpsmen, physician's assistants, and physicians in the communication and clinical applications of telemedicine. Each of the three groups trained subsequently deployed in support of U.S. forces in Macedonia. **In addition, the department operates a telemedicine link to Macedonia, providing full spectrum medical consultation to deployed U.S. personnel.**

In September, 1994, USUHS and NASA cosponsored the Second International Conference on Telemedicine, "Remote Health Care and Disaster Response." This conference attracted more than 300 attendees from the U.S. and abroad, including congressional staff, federal agency staff, communications technology experts, and a wide array of health care practitioners and researchers. The proceedings were prepared for publication in the "Journal of Medical Systems" and provide guidance and recommendations for local, national, and international programs in the private and public sectors. Through this and other activities, USUHS has established a position of both national and international recognition in telemedicine.

The World Wide Web (WWW) is an international network of computers which provide information. Numerous USUHS-SOM departments maintain "Home Pages" that become windows to the Information Superhighway. For example, the Department of Pathology has utilized the WWW to provide information to more than ten countries and scores of clients nationally. The recognition of the USUHS site in the WWW is partly due to the inclusion of the Pathology server in the widely known lists of servers archived at the Universities of Harvard and Stanford. The majority of connections are from educational institutions.

A new feature, Cases for Diagnosis: Surgical Pathology, has been designated by the USUHS Office of Continuing Health Professional Education for Continuing Medical Education (CME) credit. The primary goal of the project is to provide CME to uniformed services physicians and secondarily to civilian practitioners. It also serves as a training tool for pathologists and other diagnosticians. They can formulate their differential diagnosis through images on a computer monitor instead of the traditional microscope-based diagnosis or through

direct physical contact. This CME program is in accordance with the DoD and the Army Surgeon General's initiative on Telemedicine. It is envisioned that the USUHS capability to provide CME through the WWW will soon expand to include all USUHS-SOM departments which cover the numerous medical and allied medical specialties.

Clinical Psychology Ph.D. Program

USUHS was congressionally tasked on December 9, 1992, to establish a Ph.D. program in Clinical Psychology for the 1993-94 academic year. "The students are to be drawn from qualified applicants in the services and in the private sector." This program was initiated in the 1992 academic year with one student from the Amy. Three additional officers entered the program in August 1993; the three services each provided one officer for the entering class of August 1994. A class of 2 students entered the program in August 1995.

The curriculum and program of study were redesigned by a joint group consisting of the USUHS-SOM Medical and Clinical Psychology faculty, representatives from the three services, and outside consultants. Courses are taught by members of the services who have received clinical faculty appointments at the USUHS-SOM and by faculty from nearby medical schools and universities. A new faculty member was appointed as the Director of Clinical Training and two other clinical faculty members were recruited and joined the USUHS-SOM faculty in August, 1994. Over 20 active duty military psychologists from the three services were appointed as clinical faculty to assist with the program. Memoranda of agreement were drafted to enable the Walter Reed Army Medical Center, the National Naval Medical Center and the Malcolm Grow Medical Center to serve as training sites for USUHS Clinical Psychology students.

Women's Health Curriculum Advisory Committee at USUHS

The House Armed Services Committee Conference Report (103-200, page 305) for the National Defense Authorization Act for Fiscal Year 1994 directed as follows:

"**...that a woman's health curriculum advisory committee be established at the Uniformed Services University of the Health Sciences F. Edward Hébert School of Medicine to promote the comprehensive integration of women's health issues into the current curriculum at the University**. Such a curriculum should be designed to better prepare the University's graduates to diagnose and treat the unique health care needs of active duty women as well as other female beneficiaries of the military medical system. The advisory committee should develop a curriculum that devotes specific attention to the illnesses affecting women. As a minimum, the committee's membership should include the Surgeons General of the three military departments and the Dean of the School of Medicine, or senior officials experienced in women's health issues who may be designated as their representatives, and other experts in women's health issues."

Notification of this congressionally-mandated requirement was sent from Health Affairs/DoD to the President, USUHS, in January, 1994. The membership of the committee was established according to the legislation.

The advisory committee has finalized documents on educational goals, objectives, and outcomes following review by the faculty. Academic departments have submitted syllabi addressing areas outlined in the documents. This material is now under review by a clinical and basic science subcommittee for the purpose of constructing a master syllabus on women's health which encompasses the four-year curriculum.

Training Uniformed Psychologists for Prescription Writing Authority

This congressionally mandated demonstration project is intended to train clinical psychologists to

prescribe certain psychotropic drugs. The Army Surgeon General was charged as executive agent to develop a demonstration project that would prepare uniformed clinical psychologists to prescribe a limited formulary of these drugs within the military health care system. In 1991, four military clinical psychologists were assigned to participate in this demonstration project. The first phase of this project evaluated the feasibility of using unmodified courses from the medical student cumculum of the USUHS-SOM, to be accompanied by a clinical practicum at the Walter Reed Army Medical Center (WRAMC). The use of unmodified courses prolonged the total training period to three years and provided materials that were not focused on the specific needs of the trainees. To further develop this program, WRAMC was given primary responsibility to develop a new curriculum and manage the two year training program. The USUHS was assigned to support WRAMC in the development and initiation of the didactic portion of the new two year program. The Surgeon General of the Army was tasked to appoint an advisory committee to oversee the entire demonstration program. The American College of Neuropsychopharmacology (ACNP) serves as the external evaluator of this program.

Two of the original four clinical psychologists completed the training project in May 1994, and were assigned to USN clinical facilities in Portsmouth and Bethesda; of the remaining two, one withdrew voluntarily from the program, and the other one entered medical school in the Fall of 1993.

Two clinical psychologists entered the training project in June, 1993. These two fellows completed their didactic requirements in May, 1994, and began their clinical practicum at WRAMC. One student was withdrawn from the program in December 1994 upon separation from the military for failing to be promoted for the second time. The second student completed the clinical practicum in May 1995.

Five clinical psychologists entered the training program in June, 1994. This third group of matriculants participated in the didactic part of the curriculum and completed it in May, 1995. They are now participating in the clinical practicum. Two fellows who comprise the fourth class began the curriculum in June 1995 and are scheduled to complete the program in May of 1996.

After several on-site visits, the ACNP Evaluation Team submitted recommendations about the revised curriculum for the demonstration project. In general, the ACNP found the one year didactic curriculum addressed both the programmatic goals and the specific academic needs of the trainees.

The one year clinical practicum in the Department of Psychiatry, WRAMC, has evolved from primarily training on the out-patient psychiatry service to training in both in-patient and out-patient settings. During the past year, a tri-service advisory council on the program met and developed guidelines for the scope of practice for the prescribing psychologists within the uniformed services health care system. Additionally, policies on admission, practice population, formulary, and credentialing were recommended to the Assistant Secretary of Defense for Health Affairs.

Armed Forces Radiobiology Research Institute (AFRRI)

The Armed Forces Radiobiology Research Institute (AFRRI) is a tri-service research center established in 1961. AFRRI employs about 169 military and civilian scientists, physicians, veterinarians, technicians, and support personnel. AFRRI is located on the grounds of the National Naval Medical Center in Bethesda, Maryland. AFRRl scientists conduct research on the biological effects of ionizing radiation, with emphasis on operational biomedical questions relating to the national defense.

AFRRl is DoD's only radiation laboratory and it conducts a unique research program on radioprotective agents, assessment of early and late radiation hazards, and the medical treatment of radiation casualties. AFRRI has the only reactor in the country dedicated to radiobiology research on neutrons.

AFRRl was transferred to USUHS from the Defense Nuclear Agency effective October 1, 1993, by a Program Decision Memorandum. AFRRl was later identified for transfer to the Armed Forces Medical Research and Development Agency (AFMRDA), a new organization currently being established. However, on August 23, 1995, Program Decision Memorandum # 1 directed the Undersecretary of Defense for Acquisition and Technology to close AFRRI and to begin nuclear reactor shutdown in Fiscal Year 1997. A detailed plan for closure was due to the Undersectetary on November 15, 1995. At this time, consultation is underway with DoD to determine the Department's requirements for the unique research that is conducted by AFRRI. A decision as to the future of this organization will be made prior to the close of the Fiscal Year 1997 budget review.

V. THE FUTURE

The General Accounting Office report of September, 1995, substantiates that USUHS has met, and continues to meet, the mission established by Congress in 1972. USUHS, at a reasonable cost to the taxpayer, produces a core cadre of physician-leaders who are specifically educated in the academic and operational disciplines of military medicine.

The founders of USUHS can rest assured that the quality of their only military medical school will continue to be viewed with professional regard by its international counterparts in Algeria, Belgium, Bulgaria, France, Germany, Greece, India, Indonesia, Iran, Italy, Japan, Korea, Mexico, Pakistan, the People's Republic of China, Poland, Russia, South Africa, Taiwan, and Turkey. All of these nations recognize the need for and fund government-sponsored military medical schools.

The faculty and staff of USUHS look forward to the further expansion of the USUHS mission. The graduates of USUHS and its extensive products and services have been appreciated and recognized by the uniformed services and the Surgeons General as indicated in their official memoranda and congressional testimony. The September 1995 report of the National Performance Review no longer specifically recommends USUHS for closure in its section on the Depsrtment of Defense (" Common Sense Government, " page 96). Heartened by this knowledge, strengthened by its international counterparts, and aware of the complex restructuring that continues to take place throughout the military medical system, USUHS stands by, ready to accept new challenges as may be required by the uniformed services and the nation.

For further information contact, the Office of the Vice President for Administration and Managernent/USUHS (301-295-1 956).

Table 2.9: Total Federal Costs for Education and Career Compensation of University and Scholarship Graduates

	Costs per graduate			Costs per year of service		
	USU	HPSP (regular)	HPSP (deferred)	USU	HPSP (regular)	HPSP (deferred)
Education	$566,506	$125,946	$125,946	$30,697	$12,916	$23,825
Pay	1,739,626	723,257	497,302	94,265	74,169	94,075
Retirement	439,575	81,186	25,506	23,819	8,326	4,825
GME	500,879	521,048	[a]	27,141	53,433	
Military training	5,776	10,970	10,970	313	1,125	2,075
Total DOD costs[b]	$3,252,362	$1,462,408	$659,724	$176,236	$149,969	$124,801
Other federal support	$98,522	$304,248	$564,038[c]	$5,339	$31,200	$106,700
Total federal costs[b]	$3,350,883	$1,766,656	$1,223,762	$181,575	$181,169	$231,501

[a]Not applicable. GME costs for deferred scholarship program participants are included in other federal support.

[b]Totals may not add due to rounding.

[c]The deferred scholarship program includes federal support for undergraduate ($304,248) and graduate medical education ($259,790).